

Claims

- 5 1. An ozone generator having a number of components made of steel, comprising hollow cathode tubes, tubesheets and a shell, the hollow cathode tubes being arranged between two mutually facing tubesheets and defining on the one hand interior spaces through which gas may flow and on the other hand a shell space which may be exposed to coolant, a cooling unit being provided for cooling purposes which is of the type having evaporator, compressor and condenser and the evaporator of the cooling unit being incorporated directly into the shell of the ozone generator, **characterized in that** the components made of steel are made at least in part of a steel with a nickel content of less than 10 wt.% and/or a molybdenum content of less than 2 wt.%.
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- 15 2. An ozone generator according to claim 1, **characterized in that** the steel is a ferritic chromium steel with a chromium content of 10 wt.% to 17 wt.%.
- 20 3. An ozone generator according to either one of the preceding claims, **characterized in that** the steel is selected from the group of steels which exhibit a heat conductivity of more than 20 W/mK.

4. An ozone generator according to any one of the preceding claims, **characterized in that** the steel is selected from the group comprising the following steels:

1.400 (X6Cr13)

1.4001 (X7Cr14)

1.4002 (X6CrAl13)

1.4510 (X3CrTi17).

5. An ozone generator having a number of components made of steel, comprising hollow cathode tubes, tubesheets and a shell, the hollow cathode tubes being arranged between two mutually facing tubesheets and defining on the one hand interior spaces through which gas may flow and on the other hand a shell space which may be exposed to coolant, a cooling unit being provided for cooling purposes which is of the type having evaporator, compressor and condenser and the evaporator of the cooling unit being incorporated directly into the shell of the ozone generator, **characterized in that** the shell is made of a normal steel.

6. An ozone generator having a number of components, comprising hollow cathode tubes, tubesheets and a shell, the hollow cathode tubes being arranged between two mutually facing tubesheets and defining on the one hand interior spaces

through which gas may flow and on the other hand a shell space which may be exposed to coolant, a cooling unit being provided for cooling purposes which is of the type having evaporator, compressor and condenser and the evaporator of the cooling unit being incorporated directly into the shell of the ozone generator, **characterized in that** the components are made at least in part of an aluminum alloy.

7. An ozone generator according to any one of the preceding claims, **characterized in that** the interior space and the shell space exhibit a pressure resistance of at least 16 bar.

8. An ozone generator according to any one of the preceding claims, **characterized in that** the coolant is 1,1,1,2-tetrafluoroethane (CF₃-CH₂F).

9. An ozone generator according to any one of the preceding claims, **characterized in that** an aerosol separator is provided between the shell space and the compressor.

10. An ozone generator according to any one of the preceding claims, **characterized in that** the pressure in the shell space is controlled.